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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,723	04/28/2000	Shigeki Watanabe	837.1953/JDH	5245

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EXAMINER

KIM, DAVID S

ART UNIT PAPER NUMBER

2633

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/560,723

Applicant(s)

WATANABE, SHIGEKI

Examiner

David S. Kim

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 6-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Applicant's compliance with the rejection of claims 1, 14-15, and 17 under 35 U.S.C. 112, first paragraph, in the previous Office Action (mailed on 19 October 2004) is noted and appreciated. Applicant's amendments to these claims overcome the grounds for the previous rejection. Accordingly, the previous rejection is withdrawn.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1, 3, and 6-18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The grounds for this rejection are based on the following limitations newly introduced to the claims by Applicant's most recent amendments filed on 07 April 2005:

"an adjuster for adjusting an optical path length of said optical loop so that **said first frequency f_s becomes a second frequency f_s** equal to an integral multiple of the reciprocal of a recirculation period of said optical loop" and

"wherein pulses including said wavelength λ_c and **said second frequency f_s** are generated by said nonlinear optical medium and output through the output port" (independent claims 1 and 14-15, similar limitations in independent claim 17, emphasis Examiner's).

Applicant points to page 9 for support for this "second frequency f_s " limitation. Applicant states,

"The intent of the amendment [introduced in Applicant's previous response filed on 05 August 2004] was to recite that the f_s that is introduced at the input port 2 is **not the same** as the frequency f_s that is part of the clock pulses generated by the nonlinear medium 16 and output through the output port 4. That is, at the adjuster 14 **the modulation frequency f_s of the signal, i.e., a 'first' frequency f_s , is adjusted** to become equal to an integral of the

Art Unit: 2633

reciprocal...of a recirculation period of the optical loop, i.e., a 'second' f_s that is different than the first f_s , and is not the same as the first f_s . See, e.g., page 9, lines 2-3, 6-14. The nonlinear optical medium can then generate clock pulses including the wavelength λ_c and the second frequency f_s , and output same through the output port. See, e.g., page 9, lines 22-24, and page 10, lines 3-5 and 10-19.

The independent claims 1, 14, 15 and 17 have been amended to delete the rejected recitation to '...independent...', as there is some use of the first f_s of the input signal light in the optical loop 8. However, these claims are amended to recite that the adjuster generates the second frequency f_s , which is used by the nonlinear optical medium to generate clock pulses including the wavelength λ_c and the second frequency f_s , and output same through the output port 4" (07 April 2005, p. 7, two main paragraphs in center of the page, emphasis Examiner's).

However, page 9 does not disclose a "second frequency f_s ." Moreover, the rest of the specification also does not disclose a "second frequency f_s ." In particular, Applicant asserts, "the **modulation frequency f_s** of the signal light, i.e., a 'first' frequency f_s , **is adjusted**" at the adjuster 14 to generate a "second frequency f_s " (quoted from citation above). However, the specification does **not** support the **modulation frequency being adjusted** at adjuster 14 to generate a second frequency f_s . Rather, the specification supports the **optical path length of the optical loop being adjusted** by adjuster 14 so that modulation frequency f_s becomes equal to an integral multiple of the reciprocal...of a recirculation period of the optical loop 8. Note the following portion from the specification:

"Signal light modulated at a frequency f_s is supplied to the input port 2, and a part of the supplied signal light is introduced through the optical coupler 10 into the optical loop 8. The optical path length L of the optical loop 8 is preliminarily adjusted by the adjuster 14 so that the modulation frequency f_s of the signal light becomes equal to an integral multiple of the reciprocal $\Delta v = c/L$ (c : light velocity) of a recirculation period of the optical loop 8. The optical amplifier 12 may be provided by an EDFA (erbium doped fiber amplifier), for example" (Applicant's specification, page 9, l. 2-12, emphasis Examiner's).

Accordingly, Applicant's specification lacks support for a "second frequency f_s " limitation. Thus, this limitation constitutes new matter. Therefore, the claims 1, 3, and 6-18 contain subject matter, said new matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. **Claims 1, 3, 6-16, and 18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 2633

Additionally, claims 1, 3, 6-16, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The grounds for these rejections are based on the following limitations newly introduced to the claims by Applicant's most recent amendments filed on 07 April 2005:

“wherein said nonlinear optical medium includes an optical fiber, and performs **amplitude modulation of** said continuous wave and **said second frequency f_s** to obtain light having said wavelength λ_c by four-wave mixing using said signal light as pump light” (independent claims 1 and 14-15, emphasis Examiner's).

In Applicant's Remarks section, filed on 07 April 2005, Applicant does not mention this “amplitude modulation of said second frequency f_s ” limitation. Additionally, Examiner did not find support for this limitation in Applicant's specification. Thus, this limitation constitutes **new matter**. Therefore, the claims 1, 3, 6-16, and 18 contain subject matter, said new matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Additionally, “amplitude modulation of a frequency” does not make much technical sense. As contrasting example, in the art, amplitude modulation of a signal or a carrier wave is commonly known since a signal or a carrier wave has an amplitude component that can be modulated. Also, as another contrasting example, in the art, modulation of a frequency is commonly known since frequency is a component of signals or carrier waves that can be modulated. However, “amplitude modulation of a frequency” would be difficult, maybe impossible, for one of ordinary skill in the art to implement since a frequency simply does not have an amplitude component that can be modulated. As **Applicant's specification does not provide an enabling disclosure of “amplitude modulation of a**

Art Unit: 2633

frequency", claims 1, 3, 6-16, and 18 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

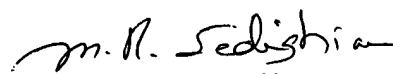
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK


M. R. SEDIGHIAN
PRIMARY EXAMINER